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minnesota department of health

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A17 295-1221

April 9, 1981

Mr. Richard Bartelt
Office of Superfund
U.S. Environmental Protection Agency
111 West Jackson
Chicago, Illinois 60604

Dear Rich:

The staffs of the Minnesota Pollution Control Agency and the Minnesota Department of Health, along with other members of the St. Louis Park Ground-water Contamination Working Committee (representing public interest groups, the Cities of Hopkins and St. Louis Park, the St. Louis Park Housing and Redevelopment Authority, the Minnesota Department of Natural Resources and the U.S. Geological Survey), have carefully reviewed the proposed Emergency Action Plan (E.A.P.) as prepared by you and your staff. The proposed E.A.P. was discussed at the last meeting of the Working Committee (3/26/81). The Committee had some difficulty in distinguishing some of the tasks outlined in the E.A.P. and those currently being handled by a consultant team headed by Hickok and Associates. This consultant team will recommend, by next fall, a set of remedial measures addressing all issues of concern associated with the general contamination problems. During the past three years, this Committee has attempted to develop and implement a comprehensive and thorough set of investigations that would conclude in the recommendation of various remedial measures. Recent inputs of E.P.A. funding from both the Enforcement Section and the Office of Superfund of Region V, have enabled much more thorough handling of site investigations and remedial program development.

① The E.A.P. as outlined seemed, in part, to primarily address controlling on-site drainage. With the installation of a storm sewer system in the mid-1970's and subsequent regrading of the site, storm water entering the site does not appear to be a significant problem. We would welcome your comments on the issue to ensure that our interpretation of your plan is correct.

② The Committee does feel that it is worthwhile to develop and install a gradient control and treatment program for the drift-Platteville aquifer system. This aquifer system is heavily contaminated on or near the Republic Creosote site. Sufficient field information appears to be available 003657 implementing this program. If implemented within the next two months, these efforts may effectively complement the ongoing work of the State and its consultants and would also minimize further migration of the heavier

Mr. Richard Bartelt

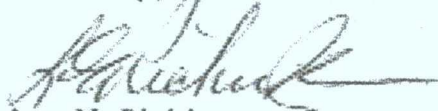
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concentrations of contaminants. In light of these recommendations, the staffs of the Minnesota Pollution Control Agency and the Minnesota Department of Health developed an alternate E.A.P., emphasizing the implementation of a drift-Platteville aquifer remedial control. We forward this proposed E.A.P. for your information and review and recommend forwarding it to headquarters.

If you have any additional information or clarification of our proposal, please feel free to contact either Mr. Richard Ferguson (612/297-3365) or Mr. Michael Convery (612/296-5297) of our staffs. Thank you for your interest and concern on this very important matter.

Sincerely,



Lovell Richie
Senior Executive Officer
Minnesota Pollution Control Agency



Roger L. DeRoos, Ph.D., Director
Division of Environmental Health
Minnesota Department of Health

Enclosure

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EMERGENCY ACTION PLAN
Reilly Tar & Chemical Republic Creosote Site
St. Louis Park, Minnesota

I. OVERVIEW OF EMERGENCY ACTION PLAN:

A. Background:

Operation of a coal-tar distillation and wood preserving plant from 1918-72 in St. Louis Park resulted in substantial soil and groundwater contamination. By 1932, water in the Prairie du Chien-Jordan aquifer, the region's major source of groundwater, was contaminated 3,500 feet from the plant. The Prairie du Chien-Jordan aquifer underlies the area at depths of 250-500 feet and is overlain by two bedrock aquifers (Platteville and St. Peter), two confining beds (Glenwood and the basal part of the St. Peter) and 70 to 100 feet of drift (glacially deposited soils of varying percentages of clay, sand and gravel). Please refer to the attached figure.

Drift materials on and south of the site have been contaminated by surface spills and by infiltration of contaminated process water. Near the process water disposal pond, an undissolved contaminant mass is moving vertically downward relative to the lateral movement of contaminants dissolved in the groundwater. Fluid pumped from a monitoring well in the drift contained 6,000 milligrams per liter total organic carbon. Lateral movement of the contaminants have been identified 4,000 feet to the southeast of the site in the drift-Platteville aquifer.

Four St. Louis Park municipal drinking water wells were closed in 1978 because of a health risk due to the presence of polynuclear aromatic hydrocarbons (PAH). A fifth municipal well was closed in 1979, and a sixth municipal well was closed in Hopkins in 1981.

There have been several soil and groundwater investigations conducted at the site during the seventies. The State is currently funding two investigations to be completed in 1981, and 1982. These investigations have identified six remedial actions. They are as follows:

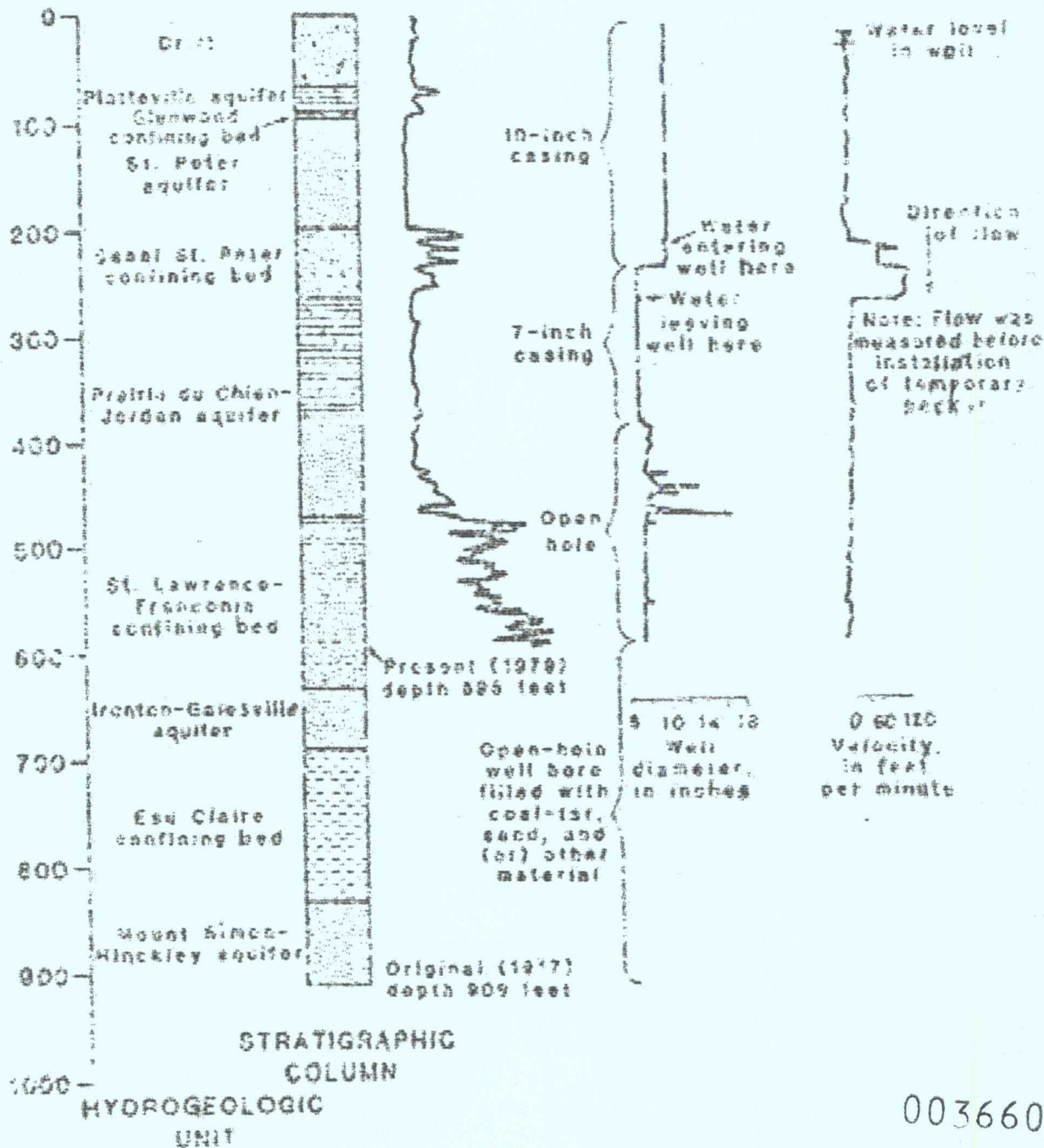
1. On-site deep well remedial action
2. Well abandonment in impacted area
3. Pilot water treatment plant (Prairie du Chien aquifer)
- 4. Barrier/recovery well system for contaminated aquifers
5. Removal and/or isolation of contaminated soil mass
6. Long-term monitoring program.

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Plans and specifications are being prepared for items 1, 2, and 3 using \$400,000 of U.S. Environmental Protection Agency Reallocation Funds and should be completed six months after receipt of the funding. The intent of the Reallocation Funding is to prepare these tasks for implementation with Superfund monies as they become available. Items 4, 5, and 6 are under investigation by Hickok & Associates, Ceraughty & Miller, and Henningson, Durham & Richardson, to be completed in September, 1981.

DEPTH
BELOW
LAND
SURFACE.
IN FEET

GEOFYSICAL LOGS



Under current estimates, the earliest items 4, 5, and 6 could be ready for implementation would be 12 to 18 months from now. Sources of funding for implementation of remedial measures include litigation awards or settlements, Superfund monies, or special State appropriation.

B. Need for Emergency Containment:

Since 1978, six municipal wells in the Prairie du Chien limestone have been closed because of a health risk due to the presence of polynuclear aromatic hydrocarbons (PAH). These well closures occurred on three different occasions over the three-year period. Because of the nature of the cavernous limestone, rates of contaminant movements are much greater than for a sandstone aquifer. The direction of groundwater flow is influenced by shifting cones of depression in the water pressure surface caused by varying groundwater usages. This results in a relatively fast arrival of contaminants at locations further downgradient.

Because of funding restrictions, a drift-Platteville barrier well could not be constructed until 12-18 months from April 1981 if Superfund monies become available. The changing water quality occurring in the Prairie du Chien limestone necessitates containment of the contaminant source in the drift aquifer immediately. In order to effectively reduce the contaminant mass reaching the Prairie du Chien limestone, emergency action is needed to construct a groundwater barrier well in the drift-Platteville aquifer.

The barrier well could be constructed on the site and recovered water discharged to a lined stormwater pond or to the Metropolitan Waste Control Commission sanitary sewer. Treatment of the water to remove organic contaminants is necessary before discharge to the stormwater pond or sanitary sewer. Therefore, a water treatment plant must be constructed to pretreat the discharge from the barrier well.

- C. F.I.T. Reports: The F.I.T. will be requested to review existing information and develop needed planning information to implement the emergency actions. The U.S. EPA Emergency Response Team will be called up to initiate this project in cooperation with the Minnesota Pollution Control Agency.

II. SITE STATUS:

In 1972, the Republic Creosote Plant ceased operations and the land was sold to the St. Louis Park Housing and Redevelopment Authority. The facility structures were demolished and the site was graded. A stormwater sewer system, including two sealed stormwater retention ponds, was installed during the mid-1970's. A small area flanking Trunk Highway #7 is not handled by the on-site drainage system. Construction of a condominium complex (Oak Park Village) began in the mid-1970's on the northeast quadrant of the site, but further development was halted as the extent and magnitude of the soil and groundwater contamination became evident. Other than the condominium development and the construction of a bowling alley on the extreme southeast corner of the site, the land has not been developed and remains vacant. The City of St. Louis Park is currently spreading

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the vacant site with 6-8 inches of topsoil to improve the site drainage to the retention pond and to cover exposed debris (bricks, iron rods, etc.) in order to minimize the possibility of injuries and to enable easier on-site maintenance (mowing).

- A. Security Measures: No gates, fencing, or access control currently exist. Although the soils and deeper subsoils are contaminated, the near-surface soil is not particularly contaminated and offers no more danger to nearby residents or persons on the site than any other vacant, industrial lot in terms of access. The City of St. Louis Park is currently landscaping the site by adding 6-8 inches of topsoil to minimize hazards from exposed debris.
- B. On-Going Activities: The only on-going activity is the current landscaping by the City of St. Louis Park and the prohibition of any site development until a remedial program has been developed and implemented.
- C. Current Information on Extent of Contamination: Air quality is currently not a problem with the site in its present condition. However, air quality problems have been encountered in the past during excavation on or near the site (i.e., storm sewer installation, construction of Louisiana Avenue, construction of condominiums). Any future excavations would likely pose the same problems to immediate residents and to workers.

On-site soils and drift deposits are contaminated due to plant spills, accidents, and drippings from treated wood products. Wastewaters and on-site drainage were directed to a wetlands area south of the site. In this area, heavy contamination by free creosote oils is evident to a depth of 50-60 feet. It is roughly estimated that three million cubic yards of contaminated soils exist on and immediately off-site.

Groundwater contamination is much more areally extensive in the deeper bedrock aquifers. Contamination in the Platteville and Prairie du Chien limestones is present approximately two miles east and southeast of the site. The extent of contamination in the sandstone aquifers (St. Peter, Jordan, Franconia-Ironton-Galesville, Mt. Simon-Hinckley) is not as well defined, but does not appear to be as extensive as the cavernous limestones.

Two on-site multi-aquifer wells (900 feet) are currently filled with debris and may have received creosote and coal-tar in the past. These two wells may have caused the rapid introduction of contaminants into the deeper aquifers. Off-site, multi-aquifer wells appear to be effective conduits in spreading contaminants further from one aquifer to another.

- D. Current Information on Human Health/Environment: Six municipal wells (five serving St. Louis Park and one serving Hopkins), all drawing from the Prairie du Chien aquifer, have been contaminated by polycyclic aromatic hydrocarbons and taken off-line. Four wells (SLP 7, 9, 10, 15) were removed from service in November, 1978. A fifth well (SLP 4) was

removed from service in December, 1979. The sixth well (Hopkins 3) was closed in February, 1981. Many nearby private wells were also closed.

Unfortunately, the simple closing of wells is not an effective solution. Many of the contaminated wells acted effectively as barrier wells to some degree. As these wells are taken out of operation, contaminants migrate towards active pumping wells. Contaminant transport appears to be extremely sensitive to local pumping stresses. Considering that the Prairie du Chien-Jordan aquifer system supplies 70% of the groundwater utilized in the Twin Cities metropolitan area, it is extremely important that further spread of contaminants be minimized as much as possible.

At this point, the groundwater currently utilized by St. Louis Park is safe for drinking purposes in terms of polyaromatic hydrocarbons. However, the City is currently facing a severe water quantity problem and, without implementation of some hydraulic control program, additional wells will probably be impacted in the future.

III. RECOMMENDED ACTIONS:

A. Security Measures: No additional security measures are necessary on the present, inactive site. Access control will likely be necessary during implementation of remedial actions.

B. Extent of Contamination:

1. Air: No air quality control mechanisms are necessary at this point. However, air quality concerns will have to be addressed during implementation of various remedial alternatives, such as excavation.
2. Water: Surface water drainage on the site is directed to two lined holding ponds. Drainage from off-site is diverted by storm sewers. There is an area flanking Trunk Highway #7 that receives limited drainage, but this area is small and the wetlands appear to be primarily a surface expression of the watertable.
3. Soil: Removal of contaminated soil is currently being addressed by the consultant team of Hickok & Assoc., Geraghty & Miller, and Henningson, Durham & Richardson.
4. Groundwater: The consultant team headed by Hickok & Assoc. is currently evaluating alternatives for removal/control of contaminated soils, developing a gradient control system for all aquifers, and evaluating alternative water treatment systems for handling contaminated waters. This consultant team, upon receipt of U.S. EPA Reallocation Funds, will also be developing a barrier well and pilot treatment system for the Prairie du Chien aquifer, supervising investigation of the two on-site deep wells and developing specifications for clean-up, and developing a comprehensive well abandonment plan. With the availability of "Superfund" monies, implementation of the tasks of the Remedial Action Plan will occur.

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The Emergency Action Plan, as outlined in the proposal, will involve controlling further spread of heavily contaminated groundwaters in the shallow drift deposits. The material represents a major source of contaminants for both lateral and vertical transport. Development of a gradient control, treatment, and disposal program is included in this task.

- C. Human Health/Environmental Impacts: Implementation of any remedial program, particularly one involving treatment and disposal of contaminated waters, must be carefully evaluated in terms of human health and environmental risks. Any avenues of possible human exposure must be addressed and the risks minimized.
- D. Mitigative Actions: Following completion of the F.I.T. and State planning efforts and with the availability of Emergency Action Funds under the Superfund Program, the drift-Platteville gradient control and treatment project will be implemented.

IV. EMERGENCY ACTION PLAN:

	<u>Initiation Date</u>	<u>Operation Party</u>	<u>Responsible Party</u>	<u>Completion Date</u>	<u>Cost</u>
Office of Superfund/MPCA Agreement on Project Details	Day 5	in-house	EPA	Day 1	
Barrier Well and Treatment Study	Day 25	?	EPA/State	Day 60	\$60,000 K? <i>How much?</i>
Development of Plans and Specifications	Day 60	?	EPA/State	Day 90	\$40,000 K?

Assume Availability of Superfund Monies.

Construction of Drift Control System	Day 90	Contractor	EPA/State	Day 150	Unknown
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need to know

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